PRINCE EDWARD ISLAND

POTATO ENTERPRISE STUDY

1981

Published Jointly By

Regional Development and International Affairs Branch

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INTRODUCTION

The purpose of this study was to examine and analyse the financial and production information of selected potato growers in Prince Edward Island. Eighteen (18) farmers were surveyed for their 1981 crop year information.

The farmers selected derived more than seventy-five per cent of their farm income from potatoes. They were not chosen on a random basis, and therefore the results are not necessarily representative of all potato farmers in the province. However, the findings of this study may act as benchmark information for potato growers, farm management personnel, agricultural representatives and others. For example, comparing the average results with their own farm records may assist potato growers in identifying problems and making management decisions.

The report contains two sections. The first section presents and analyses the average financial and production information of all the farmers interviewed. The second section shows the results of the nine (9) farmers who had less than 140 acres of potatoes and nine (9) farmers who had more than 140 acres of potatoes. The reason for presenting the sub-grouping results is to determine whether or not the size of operation influences yields and/or net returns. However, since the sampling technique was not statistically designed to examine these factors and since many influencing factors were not included in the study (such as soil classification, climate, machinery complement) no precise factors can be isolated.

SECTION 1

AVERAGE RESULTS OF ALL SELECTED FARMS

The selected farmers managed an average of 623 acres, with 194 acres planted in potatoes, 302 in other crops and the remaining 126 acres in pasture and woodlots. (Table 1)

Table 1: Average Land Use by 18 Selected PEI Potato Growers - 1981

	Acres
Potatoes (owned)	100
Potatoes (rented)	94
Other Crops (owned)	182
Other Crops (rented)	120
Pasture	23
Wood and Wasteland	103
	623

Five different varieties of potatoes were produced: Kenebec, Netted Gem, Sebago, Superior and others. The average yield obtained for all varieties was 241 hundredweight per acre. The highest producing variety was Superior having an average yield of 284 hundredweights, while the lowest yielding variety was Kennebec with an average of 184 hundredweight per acre. (Table 2)

Table 2: Potato Yields by Variety for 18 Selected PEI Potato Growers - 1981

Variety	Yield (cwt/ac)
Kennebec	184
Netted Gem	237
Sebago	277
Superior	284
Other	261
Average Yield	241

The yields were obtained with plantings of 23 hundredweights per acre for round white potatoes and applying 1,000 pounds of 12-20-20 fertilizer; for Netted Gems, the planting rate averaged 14 hundredweights per acre and the fertilizer application rate was 1,000 pounds of 15-20-20. (Table 3)

Table 3: Seed Planting Rates and Fertilizer Application Rates by 18 Selected PEI Potato Growers - 1981

Seed Planted:		(cwt/ac)
Round Whites		22.56
Netted Gems		13.55
Fertilizer Application Rates:		(lbs/ac)*
Round Whites -	Nitrogen	126
	Phosphorous	194
	Potassium	190
Netted Gems -	Nitrogen	155
	Phosphorous	209
	Potassium	209

*pounds of active ingredients

The average total investment was $359,483. Land was the largest investment representing 56 per cent of the total. Machinery and equipment accounted for 29 per cent. The values of land and buildings were estimated at fair market value while machinery and equipment were valued at cost less depreciation. (Table 4)

Table 4: Average Capital Investment by 18 Selected PEI Potato Growers - 1981

	($)	(%)
Cropland	201,083	55.94
Buildings	39,340	10.94
Machinery & Equiipment	104,647	29.11
Other	14.413	4.01
Total Investment	359,483	100.00

The combination of the resources used and the management practices of this group of farmers resulted in an average gross farm revenue for the 1981 crop year of $239,261, of which $203,100 (or 85 per cent) was generated from potato sales. Tablestock and seed potato sales average 66 and 24 per cent of total potato revenue respectively. Processing potatoes accounted for 4 per cent, while seed retained for planting in 1982 valued at market prices, represented 4 per cent.

Table 5: Average Gross Farm Revenue of 18 Selected PEI Potato Growers - 1981

	($)	(%)
Potatoes -		
Tablestock	134,571	56.24
Seed Retained	9,222	3.85
Seed Marketed	49,631	20.74
Processing	9,675	4.04
Total	203,100	84.89
Other Crops	19,030	7.95
Livestock	8,792	3.67
Government Assistance	3,500	1.46
Miscellaneous	4,839	2.02
Total Farm Revenue	239,261	100.00

The average total farm expenses incurred to generate the above revenues were $263,327. Since the majority of the selected farmers practice crop rotation for soil conservation and since it was difficult to isolate expenses associated with only potato production, all farm expenses were included.

Current expenses accounted for 86 per cent of total expenses. The largest were hired labour and fertilizer at 14.8 and 13.2 per cent respectively. Seed potato expenses, both purchased and retained from the previous year's crop accounted for 13.36 per cent of total expenses. Depreciation, which was taken from the Capital Cost Allowance Schedule of the 1981 Income Tax Form, amounted to $36,821.11 or 13.98 per cent. (Table 6)

Table 6: Average Farm Expenses of 18 Selected PEI Potato Growers - 1981

	($)	($/ac)*	($/cwt)	(%)
FERTILIZER AND LIME	34707.83	178.60	.74	13.18
SPRAY MATERIALS	21021.56	108.17	.45	7.98
SEED POTATOES - RETAINED	13751.11	70.76	.29	5.22
- PURCHASED	21430.28	110.28	.46	8.14
HIRED LABOR	39027.83	200.83	.83	14.82
REPAIRS, VEH. AND MACH.	18010.94	92.68	.39	6.84
REPAIRS, BUILDINGS	2310.22	11.89	.05	.88
GAS., OIL AND HEATING	12720.39	65.46	.27	4.83
ELECTRICITY AND TELEPHONE	2678.83	13.78	.06	1.02
INSUR., LICENSE AND REG.	7024.22	36.15	.15	2.67
RENT. BUILD., LAND, EQUIP.	6424.67	33.06	.14	2.44
TRUCKING AND CUSTOM WORK	3383.56	17.41	.07	1.28
PROPERTY TAXES	1106.00	5.69	.02	.42
LIVESTOCK AND THEIR SUPP.	10587.94	54.48	.23	4.02
INTEREST ON OP. CAPITAL	13374.39	68.82	.29	5.08
INTEREST ON CAP. INVEST.	7772.33	39.99	.17	2.95
MISCELLANEOUS	11174.17	57.50	.24	4.24
TOTAL CURRENT EXPENSES	226506.28	1165.56	4.84	86.02
BUILDING DEPRECIATION	14247.61	73.32	.30	5.41
MACHINERY DEPRECIATION	22573.50	116.16	.48	8.57
TOTAL DEPRECIATION	36821.11	189.47	.79	13.98
TOTAL FARM EXPENSES	263327.39	1355.03	5.63	100.00

* per potato acre

The resulting Net Cash Income for this group average $12,755 ($65 per potato acre) and ranged from a low of -$302 per potato acre up to $690 per potato acre. The Net Farm Income, which accounts for depreciation, was -$24,066 or -$124 per potato acre. (Table 7)

Table 7: Income Summary for 18 Selected PEI Potato Growers - 1981

	TOTAL ($)	PER ACRE ($)	PER CWTS ($)
Total Farm Revenue	239,261	1,231.19	5.12
Total Current Expenses	226,506	1,165.56	4.84
Net Cash Income	12,755	65.64	.27
Total Depreciation	36,821	189.47	.79
Net Farm Income	-24,066	-123.84	-.51

The average cost of growing potatoes was also estimated for this group to be $1,169 per acre or $4.86 per cwt. This was calculated by subtracting the non-potato revenue from the total farm costs. The assumption was that all other farm enterprises had no associated profits or losses. However, the resulting figure does not include a return to capital investment or unpaid labour charges.

Table 8: Average Cost of Growing Potatoes for 18 Selected PEI Growers - 1981

ITEM	TOTAL ($)	PER ACRE ($)	PER CWTS ($)
TOTAL CURRENT EXPENSES	226506.28	1165.56	4.84
TOTAL DEPRECIATION	36821.11	189.47	.79
TOTAL FARM EXPENSES	263327.39	1355.03	5.63
SALES (EXCL. POTATOES)	36161.44	186.08	.77
COST OF PROD. POTATOES	227165.94	1168.95	4.86

SECTION 2

AVERAGE RESULTS OF FARMERS HAVING TOTAL PTOATO ACREAGE OF LESS THAN AND MORE THAN 140 ACRES

The eighteen (18) selected farmers were divided into two groups: those who operated less than 140 acres of potatoes (9 farmers) and those who operated more (9 farmers).

The farmers who have less than 140 acres of potatoes (Group A) managed an average of 381 acres, with 109 acres in potatoes, and 182 acres in other crops. The farmers with more than 140 acres of potatoes (Group B) managed an average of 864 acres, with 279 acres in potatoes and 422 acres in other crops. (Table 9)

Table 9: Average Land Use of Group A and Group B* - 1981

	Group A (ac)	Group B (ac)
Potatoes (owned)	53	146
Potatoes (rented)	56	132
Other Crops (owned)	115	250
Other Crops (rented)	67	172
Pasture	8	39
Wood and Wasteland	82	124
Total Land Operated	381	864

* Group A were selected farmers with less than 140 acres of potatoes (9 farmers).
Group B were selected farmers with more than 140 acres of potatoes (9 farmers).

Average yields for the two groups were 240 hundredweights. Planting rates for Round White potatoes were higher for Group A (25.7 cwt/ac) compared to Group B (21.1 cwt/ac). Planting rates for Netted Gems were similar for both groups, approximately 13.6 hundredweights per acre. (Table 11)

Table 10: Potato Yields by Variety for Group A and Group B - 1981

Variety	Group A Yields (cwt/ac)	Group B Yields (cwt/ac)
Kennebec	224	155
Netted Gem	243	235
Sebago	218	280
Superior	275	290
Other	0	261
Average Yield	240	241

Table 11: Seed Planting Rates and Fertilizer Application Rates for Group A and Group B - 1981

	Group A (cwt/ac)	Group B (cwt/ac)
Seed Planted		
Round Whites	25.66	21.14
Netted Gems	13.68	13.51
	Group A (lbs/ac)	**Group B (lbs/ac)**
Fertilizer Application Rate		
Round White - Nitrogen	134.2	122.2
- Phosphorous	210.0	187.3
- Potassium	194.9	187.3
Netted Gems - Nitrogen	172.4	149.7
- Phosphorous	206.1	210.2
- Potassium	206.1	210.2

Fetilizer application rates on Round Whites were approximately the same for both groups. However Group B applied less nitrogen to both Round Whites and Netted Gems as compared to Group A. (Table 11)

The capital investment of both groups were similar with land being the largest investment followed by machinery and equipment, then buildings. In absolute terms, Group B had approximately 140 per cent more investment than Group A ($211,744 compared to $507,221). The average investment per acre operated (owned and rented) for Group A was $555, for Group B it was $587 per acre. (Table 12)

Table 12: Average Capital Investment for Group A and Group B - 1981

	Group A		Group B	
	($)	(%)	($)	(%)
Cropland	123,744	58.4	278,422	54.9
Buildings	15,628	7.4	63,050	12.4
Machinery & Equipment	62,085	29.3	147,207	29.0
Other	10,286	4.9	18,540	3.7
Total Investment	211,744	100.0	507,222	100.0

The average revenues per hundredweight for Group A amounted to $4.09, which was slightly lower than the average for Group B of $4.44 per hundredweight. Farmers in Group A had a slightly higher percentage of their potato revenues coming from the sale of tablestock while Group B sold a higher percentage of potatoes for seed. In both groups the largest portion of potato revenues came from the sale of tablestock. Potato revenues for Group B were approximately $85 per potato acre over the average for Group A. (Table 13)

Table 13: Average Gross Farm Revenues for Group A and Group B - 1981

	Group A ($)	Group A (%)	Group B ($)	Group B (%)
Potatoes -				
Tablestock	83,992.44	64.62	185,149.00	53.12
Seed Retained	3,312.22	2.55	15,133.56	4.34
Seed Marketed	17,572.33	13.52	81,690.33	23.44
Processing	3,023.33	2.33	16,326.67	4.68
Total	107,900.33	83.02	298,299.56	85.58
Other Crops	11,860.22	9.13	26,199.11	7.52
Livestock	3,855.00	2.97	13,728.22	3.94
Government Asst.	4,315.44	3.32	2,686.00	.77
Miscellaneous	2,041.00	1.57	7,637.89	2.19
Total Farm Revenue	129,972.00	100.00	348,550.78	100.00

Current farm expenses incurred by Group A were $1,292 per potato acre compared to $1,380 per potato acre for Group B. The most notable differences were hired labour and fertilizer costs. As well Group A's expense for seed potatoes retained per potato acre was twice that of Group B. Total depreciation per potato acre for both groups was approximately $189.

Table 14: Average Farm Expenses for Group A and Group B - 1981

	GROUP A ($)	GROUP A ($/ac)	GROUP B ($)	GROUP B ($/ac)
FERTILIZER AND LIME	20594.56	187.60	48821.11	175.06
SPRAY MATERIALS	12252.89	111.62	29790.22	106.82
SEED POTATOES - RETAINED	11894.44	108.35	15607.78	55.96
- PURCHASED	4639.22	42.26	38221.33	137.05
HIRED LABOR	15323.78	139.59	62731.89	224.94
REPAIRS, VEH. AND MACH.	8677.89	79.05	27344.00	98.05
REPAIRS, BUILDINGS	1850.33	16.86	2770.11	9.93
GAS., OIL AND HEATING	5895.78	53.71	19545.00	70.08
ELECTRICITY AND TELEPHONE	1614.33	14.71	3743.33	13.42
INSUR., LICENSE AND REG.	4198.89	38.25	9849.56	35.32
RENT. BUILD., LAND, EQUIP	1475.44	13.44.	11373.89	40.78
TRUCKING AND CUSTOM WORK	2774.44	25.27	3992.67	14.32
PROPERTY TAXES	584.33	5.32	1627.67	5.84
LIVESTOCK AND THEIR SUPP.	6366.89	58.00	14809.00	53.10
INTEREST ON OP. CAPITAL	5443.22	49.58	21305.56	76.39
INTEREST ON CAP. INVEST.	7278.44	66.30	8266.22	29.64
MISCELLANEOUS	10162.44	92.57	12185.89	43.69
TOTAL CURRENT EXPENSES	121027.33	1102.48	331985.22	1190.39
BUILDING DEPRECIATION	1628.33	14.83	26866.89	96.34
MACHINERY DEPRECIATION	19122.00	174.19	26025.00	93.32
TOTAL DEPRECIATION	20750.33	189.02	52891.89	189.65
TOTAL FARM EXPENSES	141777.67	1291.50	384877.11	1380.04

The resulting Net Cash Incomes were significantly different, $8,945 for Group A and -$16,566 for Group B. However, Net Farm Income (which includes depreciation) for Group A was -$11,806 compared to -$36,326 for Group B. (Table 15)

Table 15: Income Summary for Group A and Group B - 1981

	Group A ($)	Group A ($/ac)	Group A ($/CWTS)
TOTAL FARM REVENUE	(+)129972.	1183.96	4.93
TOTAL CURRENT EXPENSES	(-)121027.	1102.48	4.59
NET CASH INCOME	8945.	81.48	.34
TOTAL DEPRECIATION	(-) 20750.	189.02	.79
NET FARM INCOME	-11806.	-107.54	-.45

Group B

	($)	($/ac)	($/CWTS)
TOTAL FARM REVENUE	(+)$ 348551.	1249.78	5.19,
TOTAL CURRENT EXPENSES	(-)$ 331985.	1190.39	4.95
NET CASH INCOME	$ 16566.	59.40	.25
TOTAL DEPRECIATION	(-)$ 52892.	189.65	.79
NET FARM INCOME	$ -36326.	-130.25	-.54

The average cost per acre of growing potatoes was slightly higher for Group B, $1,199.85 than Group A $1,090.44. The average costs per hundredweights for Group A were $4.54, while for Group B it was $4.98.

Table 16: Average Cost of Growing Potatoes for Group A and Group B - 1981

Group A

	($)	($/ac)	($/CWTS)
TOTAL CURRENT EXPENSES	$ 121027.33	1102.48	4.59
TOTAL DEPRECIATION	$ 20750.33	189.02	.79
TOTAL FARM EXPENSES	$ 141777.67	1291.50	5.37
SALES (EXCL. POTATOES)	$ 22071.67	201.06	.84
COST OF PROD. POTATOES	$ 119706.00	1090.44	4.54

Group B

	($)	($/ac)	($/CWTS)
TOTAL CURRENT EXPENSES	$ 331985.22	1190.39	4.95
TOTAL DEPRECIATION	$ 52891.89	189.65	.79
TOTAL FARM EXPENSES	$ 384877.11	1380.04	5.73
SALES (EXCL. POTATOES)	$ 50251.22	180.18	.75
COST OF PROD. POTATOES	$ 334625.89	1199.85	4.98

SUMMARY

Eighteen selected Prince Edward Island potato growers were surveyed for their 1981 crop financial and production information. The group's average results were presented, including; land use, potato varieties grown, seeding rates, fertilizer application rates, capital investment, gross farm revenues, expenses, and cost of growing potatoes.

Some of the results found were that on average, each grower had a net farm income of -$24,066. The average price received per hundredweight was $4.34. The cost of growing potatoes was estimated to be $5.63 which did not include a return to investment and unpaid operator and family labour. 194 acres per farm were in potato production providing an average yield of 241 hundredweights per acre.

The selected growers were divided into two groups, those who had less than 140 acres of potatoes and those who had more than 140 acres of potatoes. Net Farm Incomes for the smaller operations were -$107.54 per potato acre compared to -$130.25 per potato acre for the larger operations. This difference is mainly attributed to hired labour charges. Hired labour for the larger operations was $224.94 per potato acre and for the smaller operations was $139.59 per potato acre. One would expect this difference since larger farms tend to hire more labour. Smaller farms tend to rely on operator and family labour. There were no real differences in production and management practices between the two groups. Each had similar expenses (excluding labour), revenues, fertilizer and seed application rates and yields.